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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

February 2002

BUDGET ACTIVITY

07 - Operational System Development

PE NUMBER AND TITLE

0207417F Airborne Warning and Control System
(AWACS)

PROJECT

411L

COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
411L	Airborne Warning & Control System (AWACS)	33,171	38,972	173,956	294,100	317,777	139,901	89,063	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**

The funding set forth in this document investigates, develops, and integrates system improvements to enable the E-3 AWACS to remain an effective Battle Management airborne surveillance system for command and control of combat forces and for strategic defense of the U.S. This PE funds the following efforts:

Modernization Programs: (3600)

The Satellite Communication (SATCOM) Demand Assigned Multiple Access (DAMA) compliance was mandated by the Joint Chiefs of Staff (JCS) to expand Ultra High Frequency (UHF) SATCOM access and improve UHF SATCOM system interoperability. The AWACS DAMA SATCOM program will replace two non-DAMA UHF SATCOM terminals on each aircraft with two new DAMA compliant terminals. RDT&E funding covers AWACS aircraft integration risk reduction /Engineering Manufacturing Development (EMD) beginning in FY02.

The Block 40/45 risk reduction program drives down risk of utilizing new technology to meet the AWACS Block 40/45 Operational Requirements Document (ORD) ensuring the Block 40/45 program will meet war fighting requirements. Some of the techniques that will be utilized are modeling and simulation, requirement analysis, and designing a Commercial Off the Shelf (COTS) insertion process. Block 40/45 expects to deliver sensor fusion capability in support of the Single Integrated Air Picture (SIAP) via Multi-Sensor Integration (MSI), improve AWACS' contribution to Time Critical Targeting (TCT) via Data Link Infrastructure (DLI), and replace a 70's vintage mission computer and display system to improve quality and timeliness of sensor data to the shooter, improve Combat Identification (CID) and more effective, faster upgrades via open systems architecture.

Comm projects such as HF Messenger, provide the AWACS system with an effective method for electronically receiving critical mission information such as the Air Tasking Order. The program will focus on engineering and retrofitting the current fleet.

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(U) **A. Mission Description Continued**

Air Traffic Control (ATC) Compliance, the first spiral of the Global Air Traffic Management (GATM) program seeks to make communications and navigation improvements required to meet current mandated Air Traffic Control requirements through EMD and production.

Command & Control, Intelligence, Surveillance and Reconnaissance (C2ISR): C2ISR System Architecture Improvements provide timely enhancements to improve critical areas of the AWACS mission system, particularly in four areas:

- 1) Worldwide deployment and airspace access: Increasingly restrictive International Civil Aviation Organization (ICAO) and Federal Aviation Administration (FAA) standards require the AWACS to achieve navigational and communications enhancements in order to retain its worldwide deployment commitment. Programs will focus on risk reduction, EMD, and fielding.
- 2) Mission Capable (MC) rate improvement : Reliability, Maintainability, & Availability (RM&A) analysis and development projects provide system improvements that boost the below-standard MC rate of this critical C2 platform and increase airframe longevity in order to support its flight commitment to end of operational life. Such efforts focus on increasing reliability of the air vehicle, command, control and computer, and sensor systems and infrastructure improvements as well as providing solutions to diminishing manufacturing sources. Efforts will also focus on reduction of maintenance man-hours along with periodic depot maintenance improvements to increase aircraft availability. Programs will focus on risk reduction, development, and fielding.
- 3) C2ISR enhancement and integration: AWACS seeks to fulfill the requirements of Joint Vision 2010/2020, Real Time Defense Information Infrastructure Common Operating Environment, and the Expeditionary Air Force Concept of Operations, as well as supporting the needs of the warfighter (as outlined in Kosovo Lessons Learned and other sources). AWACS seeks to achieve horizontal integration through Network Centric Collaborative Targeting (NCCT). Sensor and communications improvements, such as the ability to send and receive the air and ground picture via data link to fighter aircraft and record mission data for timely and accurate debriefings, will be developed through rapid prototyping, modeling, and simulation, participation in Joint live and simulated exercises (e.g., Joint Distributed Engineering Plant (JDEP)), and collaboration with other sensor platforms through tools such as NCCT. Certain near-term efforts, required by the warfighter to improve the timelines and accuracy of information passed to and from fighter aircraft in the engagement zone and to provide consistent and replayable mission data once the mission is complete, are quick reaction programs that can be developed and fielded to support the next air war. The program includes concept exploration & technology development and system development & demonstration efforts that support continuous improvements and implementation of C2ISR capabilities to enable a joint global strike task force. This effort includes, but is not limited to, manned and unmanned platforms, space, data links and advanced Battle Management Command, Control and Communications (BMC3) concepts. Fielding strategies will provide for immediate field retrofit when able, otherwise occur in current or

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(U) **A. Mission Description Continued**
 future modernization programs. All programs are designed to integrate with and transition into the next C2ISR platform.

4) The Training, Support, and Infrastructure Integrated Product Team is responsible for an array of cross cutting efforts. The efforts include a dehumidification study, Software Integration Lab & Development facility (SIL/SDF) support and trainer and simulator studies. A comprehensive dehumidification system is needed to combat pervasive corrosion. A new dehumidification system will reduce costs and man-hours necessary to perform preventative and corrective repairs. The SIL/SDF needs to be maintained in order to provide the US owned APY-1/2 radar subsystems/radar development equipment configured as a development lab. The effort is currently funded through FY04 by RSIP. Trainer and simulator concurrency studies are required for future modifications and upgrades. Associate contractor agreements have not been established and are needed for the current fee for service contracts.

Test System 3 (TS-3) and lab support includes maintenance and operations of the Government owned/contractor-operated test aircraft and associated laboratory facilities located at Boeing in Seattle, Washington. These facilities support AWACS modernization and support programs. They also provide the infrastructure for AWACS to participate in live fly and ground-based simulation exercises such as JDEP, Virtual Warfighter Center (VWC), SIAP, and Cooperative Engagement Capability (CEC) studies.

(U) **FY 2001 (\$ in Thousands)**

(U) \$16,290	Continuing C2ISR System Architecture Improvements
(U) \$6,852	Continuing Test System-3/AITS support and program sustaining efforts
(U) \$9,018	Starting Block 40/45 Risk Reduction
(U) \$1,011	Other
(U) \$33,171	Total

The following net transactions are not reflected in the FY01 program total: \$1.815M Cnx bill, 31 Aug 01

(U) **FY 2002 (\$ in Thousands)**

(U) \$4,446	Continuing C2ISR System Architecture Improvements
(U) \$15,947	Continuing Test System-3/AITS support and program sustaining efforts
(U) \$8,707	Continuing Block 40/45 Risk Reduction
(U) \$2,700	Starting ATC Compliance EMD
(U) \$1,757	Starting Comm Projects (HF Messenger) EMD

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<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>																																							
1	2	3	4	1	2	3	4	1	2	3	4																																				
<div style="display: flex; justify-content: space-between;"><div style="width: 30%;">Project 411L</div><div style="width: 40%; text-align: center;">Page 6 of 8 Pages</div><div style="width: 30%; text-align: right;">Exhibit R-2 (PE 0207417F)</div></div>																																															

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT		
07 - Operational System Development					0207417F Airborne Warning and Control System (AWACS)				411L		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
					<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		
(U) Contracts					23,049		27,954		164,284		
(U) MITRE/ITSP					5,193		6,135		8,290		
(U) Travel					640		601		678		
(U) Other					4,289		4,282		704		
(U) Total					33,171		38,972		173,956		
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
<u>Contractor or Government</u>		<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
(U) Boeing (Block 40/45)		FPIF/CPAF	N/A	N/A	N/A	16,902	9,793	7,108	109,060	Continuing	TBD
(U) Boeing (PDMA)*		Multiple	N/A	N/A	N/A	58,149	0			Continuing	TBD
(U) Boeing (C2ISR Sys Arch Imp)		FPIF/CPAF	N/A	N/A	N/A	29,450	6,426	2,422	23,020	Continuing	TBD
(U) Boeing (DAMA SATCOM)		T&M (ISC)	10/00	N/A	N/A	0	0	6,072	7,083		13,155
(U) Comm Projects (HF Messenger)		FFP	10/01	N/A	N/A	0	0	1,732		2,768	4,500
(U) ATC Compliance/GATM		Multiple	10/01	N/A	N/A	0	0	1,029	12,053	Continuing	TBD
(U) Raytheon (CEC)		CPAF	11/99	N/A	N/A	11,981	0	0		0	11,981
Project 411L											
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Project 411L

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Exhibit R-3 (PE 0207417F)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
										February 2002
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT
07 - Operational System Development					0207417F Airborne Warning and Control System (AWACS)					411L
(U) Performing Organizations Continued:										
* N/A based on Program Depot Maintenace Airframe (PDMA) Acquisition Strategy which includes multiple contracts with multiple organizations with overlapping and continuing performance periods.										
** Total Program does not include NATO funds.										
<u>Support and Management Organizations</u>										
(U)Support/ITSP	Multiple	N/A	N/A	N/A	562,100	10,937	11,833	9,672	Continuing	TBD
MITRE, travel, other contracts										
<u>Test and Evaluation Organizations</u>										
(U) Test System-3 ADAPT	Multiple	N/A	N/A	N/A	364,730	6,015	8,776	13,068	Continuing	TBD
Contract/AITS Contract /										
Other test activities										
(U) Government Furnished Property:										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
<u>Support and Management Property</u>										
<u>Test and Evaluation Property</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					116,482	16,219	18,363	151,216	TBD	TBD
Subtotal Support and Management					562,100	10,937	11,833	9,672	TBD	TBD
Subtotal Test and Evaluation					364,730	6,015	8,776	13,068	TBD	TBD
Total Project					1,043,312	33,171	38,972	173,956	TBD	TBD
Project 411L										
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Exhibit R-3 (PE 0207417F)										